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# 1. Purpose of Study

The purpose of the Braddock Road Metrorail Station Joint Development Analysis is to identify transit needs and demonstrate overall feasibility for transit-oriented development at the Braddock Road Metrorail Station on the Yellow and Blue Lines in Alexandria, VA.

WMATA evaluated potential Braddock Road Metrorail Station improvements envisioned by the city of Alexandria in its 2008 *Braddock Metro Neighborhood Plan* ("the Small Area Plan"), which recommended office development and improved pedestrian and bike access at the station. The analysis focused on WMATA-owned property at the station, and evaluated opportunities for joint development in the context of transit needs and nearby planned redevelopment.

The effort included a detailed assessment of opportunities for joint development at the station, including the following tasks:

- Coordination with the City on development and infrastructure recommendations, and community needs;
- Review of recommendations for land use, and evaluation of available market data;
- Assessment of existing and future transit needs, including WMATA’s needs for bus access;
- Preparation of development parameters guidelines at the station; and
- Evaluation of potential land value.

This report contains the following sections:

- Section 2: Description of Station Site
- Section 3: Neighborhood Context
- Section 4: Station Access and Circulation Needs
- Section 5: Development Parameters and Guidelines
- Section 6: Land Value Evaluation
2. Description of Station Site

The proposed joint development site is located on the east side of the Metrorail Station entrance (Figure 1). It is bounded by the Metrorail Station and CSX railroad to the west, West Street to the east, and Braddock Road to the south. There are three narrow pedestrian entrances to the Braddock Road Metrorail Station site which is bounded by a fence, hedgerow and continuous sidewalk. The site includes a bus loop with Kiss & Ride facilities. The parcel is relatively flat, however the intersection of Braddock Road and West Street is a low point where flooding occurs frequently.

Figure 1: Braddock Road Metrorail Station
The Joint Development Parcel, shown in Figure 2, is approximately 2.1 acres. The parcel is set back 50 feet from Metrorail tracks and accounts for realignment of Braddock Road to the south. A portion of WMATA Property lies within the Braddock Road right-of-way and is denoted in the figure. Refer to Section 5.3 for additional information regarding potential realignment of Braddock Road.

Figure 2: Proposed Joint Development Parcel

Source: GIS, AECOM
3. Neighborhood Context

The Metrorail Station serves mixed-income, pedestrian-oriented residential communities, and light industrial and commercial office uses in the Braddock Road Metrorail neighborhood. The neighborhoods east of the Braddock Road Metrorail Station include a combination of single-family and multi-family housing with limited neighborhood-serving retail, and the Potomac River is approximately 1-mile east of the station. Neighborhoods west of the station include single-family homes with shops, galleries and restaurants clustered along Mount Vernon Avenue in the Del Ray neighborhood.

3.1 2008 Braddock Metro Neighborhood Plan

As shown in Figure 3, several sites surrounding the joint development parcel are planned for redevelopment.

Figure 3: Development Sites from Small Area Plan

Source: 2008 Small Area Plan
The proposed Joint Development Parcel is currently zoned Utility and Transportation (UT). The 2008 Small Area Plan recommends that the site be rezoned as a Coordinated Development District (CDD). The plan also recommends office or hotel uses with ground floor retail and below grade parking. The current allowable FAR is 0.5 and the proposed Small Area Plan FAR is 3.0 with a maximum height of 77 feet. **Figure 4** shows a prototypical cross section from the Small Area Plan indicating the desired building configuration along West Street.

The CDD guidelines for urban design and public amenities are intended to reflect the vision in the Small Area Plan. The Small Area Plan envisions a robust, pedestrian-friendly, intimately scaled mixed-use development at the Metrorail Station that complements existing development around the site. It also identifies a lively urban plaza surrounded by ground-floor retail and other community-focused uses at the station.

**Figure 4: Prototypical Site Section from Small Area Plan**
3.2 Market Assessment

A high-level market overview was completed in 2014 as part of WMATA’s joint development analysis (Appendix A). Population and employment surrounding the Braddock Road Metrorail Station are summarized in Table 1.

Table 1: Braddock Road Metrorail Station Demographics

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<td>Employment (number of employees)</td>
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Source: 2010 Census and MWCOG Round 8.2 2013 Cooperative Forecasts

Recently there has been an influx of higher-density, mixed-income residential development with ground floor retail within ½-mile of the Metrorail Station. Immediately north of the Metrorail Station at Braddock Place, a new 10-story apartment building contains 165 residential units. Just two blocks to the east of the Metrorail Station, on the former site of the Belle Pre Bottle Factory, two new apartment buildings surrounding a public plaza have been completed with 360 apartments and 9,700 sf of retail space. Three blocks to the east of the Metrorail Station, the James Bland public housing site is being transformed into mixed-income townhomes and apartment buildings with 240 new residential units. In addition, the Alexandria Redevelopment and Housing Authority (ARHA) has initiated a process to redevelop Andrew Adkins directly adjacent to the Joint Development Parcel.

Beyond the immediate station area, there is currently a deep pipeline of development projects, concentrated in several large development areas: Potomac Yard, Eisenhower/Carlyle, Landmark/Van Dorn, and Beauregard. WMATA's market overview included the following key findings for joint development at the Braddock Road Metrorail Station:

- **Office**: The area around the Braddock Road Metrorail Station has a lower vacancy rate (1.8%) and limited office space compared to nearby Metro station areas. And, there is over 1 million sf of office space planned in the City to meet immediate citywide needs.
- **Residential**: The area around the Braddock Road Metrorail Station has increased its share of population, households, and housing units compared to the City as a whole.
- **Retail**: The market for retail is limited at the site; several grocery stores have been constructed, including a Giant at Potomac Yard and a Harris Teeter in Old Town. Based on market demand it is recommended to focus on smaller, development-supporting space.
3.3 Stormwater Assessment

A stormwater assessment was completed as part of WMATA’s joint development analysis (Appendix B) to evaluate joint development stormwater needs. The current land cover is shown in Figure 5 and will be largely replaced with joint development. The new Virginia stormwater management (SWM) regulations require development projects to provide low impact development (LID) SWM facilities on sites when possible. For an urban site like the Braddock Road Metrorail Station, permeable pavement and green roofs are the most viable LID techniques.

Water will also need to be treated on-site and detained on-site in an underground vault. WMATA evaluated storage volumes (Appendix B) needed to detain stormwater for joint development concepts.

The City plans to undertake a detailed study to evaluate alternatives to alleviate periodic flooding at the intersection of Braddock Road and West Street.

Figure 5: Existing Condition showing Land Cover

4. Station Access and Circulation Needs

WMATA identified a set of access and circulation needs at the Braddock Road Metrorail Station that are necessary to support current conditions and future improvements.
4.1 Transit

The Braddock Road Metrorail Station provides access to high-quality transit options that serve the City and the region. There is a shared entrance and exit for buses and vehicles at the north side of the parcel at West Street. Kiss & Ride facilities include eight short-term metered parking spaces, four taxi spaces, four Zipcar parking spaces, and one accessible parking space. The Braddock Road Metrorail Station has five standard bus bays serving eight routes for Metrobus and Alexandria Transit DASH: 10A, 10B, 10E, 10S (formerly 9E), AT2, AT3, AT4, and AT5 (Figure 6).

Figure 6: Existing Bus and Vehicular Circulation

A new Bus Rapid Transit corridor (Metroway) recently opened to provide high-quality transit services in the five-mile corridor between the Braddock Road Metrorail Station and Pentagon City in Arlington County. Metroway buses currently access the Braddock Road Metrorail Station from the north, merging into the bus loop and circulating northbound.
A transit access and circulation analysis was completed in 2014 as part of WMATA’s joint development analysis (Appendix C). To accommodate bus access, additional bus bays are needed. Two-way bus circulation is needed if the bus loop is replaced with joint development.

4.2 Pedestrian and Bicycle

Pedestrian and bicycle circulation is shown in Figure 7. Common bicycle routes to the Metrorail Station are from Wythe Street and Madison Street to the east, and from Braddock Road to the west. There is also a multi-use trail from King Street Metrorail Station and a multi-use trail on the west side of the Metro and CSX rail. At the Braddock Road Metrorail Station, there are 46 bicycle racks and 12 bicycle lockers. A Capital Bikeshare station, with a capacity of 19 bicycles, is located at the northeast corner of the Metrorail Station.

Figure 7: Existing Pedestrian and Bike Access
As identified by the community and in previous planning efforts, pedestrian and bike access should be maintained and enhanced with development of the Joint Development Parcel. The City is also envisioning realignment of Braddock Road to improve the quality of the pedestrian environment.

5. Development Parameters and Guidelines

Through coordination with the City and community, and as part of WMATA's joint development analysis, the following parameters and guidelines were developed. These guidelines would be included as part of a future joint development solicitation. WMATA aspires to create joint development at the Braddock Road Metrorail Station that is:

- Consistent with the vision set forth in the 2008 Small Area Plan;
- Responsive to community needs and market trends; and
- Responsive to transit access and circulation needs.

Development at the station should incorporate high quality architecture, compatible urban design, and improved walkability. The character and scale of the development should be compatible with the residential neighborhoods adjacent to the station, and the commercial uses north and south of the station. The centerpiece of the development should include a vibrant neighborhood open space, with neighborhood-serving stores and restaurants. Figure 8 provides a conceptual overview of site organization requirements.
Braddock Road Metrorail Station
Key Principles for Joint Development

A. Braddock Road realigned.

B. All Kiss & Ride and shuttles relocated to West Street.

C. Two-way bus facility.

D. Development Area, including 15,000 s.f. public open space. Development may extend over busway, but not within 50’ of Metrorail track.

E. 10,000 s.f. off-site public open space.

F. Strong visual and pedestrian connection between Metrorail station entrance and Wythe Street.

G. Ample pedestrian connection from Madison Street to Metrorail station entrance.

H. Strong building form at termination of Madison Street axis.

Source: AECOM
5.1 Disposition of Existing Facilities

The Joint Development Parcel is presently occupied by a transit bus facility, and a surface Kiss & Ride with short-term parking.

- The bus facilities will remain in operation on site. The developer will be required to incorporate replacement facilities into the joint development project (as described in Section 5.4 below).
- The Kiss & Ride functions (including passenger pickup/dropoff, short-term metered parking, taxis, and car sharing) will be demolished and relocated by the developer to on-street operation, as described in Section 5.4 below.

5.2 Use, Density, and Massing

Land Use and Zoning
As proposed by the City, the site will be zoned Coordinated Development District (CDD), with allowable uses limited to office, hotel, and ground floor retail. Ground-floor retail should be included at the Joint Development Parcel to the extent that it is financially viable.

Floor Area Ratio
Because of its proximity to the Metrorail Station, FAR should be maximized with a target FAR of 3.0. For purposes of calculating FAR, WMATA bus and rail facilities may be excluded from the site area.

Height
The 2008 Small Area Plan limits height to 77 feet. For purposes of joint development, WMATA would consider development with additional height as long as it is compatible with adjacent development. Any proposal for additional height would require an amendment to the existing Small Area Plan, which would require future approval by the Planning Commission, City Council, and community process.

Massing
Buildings fronting on West Street or Braddock Road should be configured with "shoulders" at a maximum height of three stories or 40 feet, with higher floors set back 12 feet from the building front.

The upper levels of the building should extend across the extended centerline of Madison Street, so as to terminate the visual axis along this street with a strong building form. The building massing should also provide appropriate transitions to the existing building to the north and south of the site and the planned development to the east.

Development may project over the WMATA bus facilities, subject to vertical clearance requirements set forth in Section 5.4.

Buildings should be set back a minimum of 50 feet from the centerline of the inbound Metrorail track.
5.3 Vehicular Circulation and Parking

Existing on-site taxi, car-sharing and Kiss & Ride activities will take place on adjoining streets. WMATA’s existing on-site automobile parking will not be replaced. The developer will be responsible for designing and constructing the adjoining streets to accommodate taxi, car-sharing and Kiss & Ride activities.

The developer is responsible for reconstructing the on-site bus loop (see Section 5.4).

No off-street public parking is required for the transit station. However, parking should be provided at grade for three Metro service vehicles.

Parking for Development

All parking for the joint development will be located below grade within the Joint Development Parcel. Underground parking will not be permitted under public roadways. All development parking and service access should be accessed directly from public streets, independent of WMATA facilities.

Parking should be provided at ratios that reflect the high-capacity transit location, up to the following maximums:

- Office: 1.66 spaces/1000 sf
- Retail, Restaurant, Personal Services:
  - 2.5 spaces / 1000 sf (personal services)
  - 3.03 to 4.67 spaces / 1000 sf (retail)
- Hotel:
  - 1 space / key (less than 3 stories), 1 space / 2 keys (over 3 stories)
  - 1 space / 4 hotel restaurant seats
  - 1 employee space / 15 guest rooms
- Residential:
  - Visit www.alexandriava.gov/76333 for standards

Roadway Modifications

The selected developer will be required to secure all City approvals and will design and construct any roadway modifications necessitated by the joint development, including but not limited to curb cuts, new or modified signalization, and signage.

The exact location and geometry of joint development curb cuts would be determined in consultation with WMATA during the joint development design process.

Realignment of Braddock Road

It should be assumed that Braddock Road will be realigned to meet Wythe Street, occupying additional WMATA-owned property within the Joint Development Parcel. The developer will be required to design the reconfiguration of Braddock Road. The responsibility for the cost of construction will be determined as part of the City approval process.
5.4 Transit Operations

This section sets forth specific requirements with respect to overall site circulation, including bus operations.

Bus Operations

It is WMATA’s expectation that a joint developer will finance, design, and construct an at-grade transit bus facility within the development parcel. The bus facility will be compliant with WMATA’s Design Criteria and Station Site and Access Planning Manual, and be configured as follows:

- Northbound Busway: To accommodate buses entering the site from Braddock Road, and departing onto West Street at Madison. Provide four standard sawtooth bays.
- Southbound Busway: To accommodate buses entering the site from Madison Street, dwelling, then departing onto Braddock Road. Provide two standard sawtooth bays.
- Metroway Bus Rapid Transit (BRT): To accommodate 60-foot articulated BRT vehicles entering the site from the north on West Street, dwelling, then departing the site to the north via West Street. Provide one sawtooth revenue bay, and one layover bay. The revenue bay should be configured with boarding platforms 14 inches above the roadway. The developer should provide conduit for power and communications connections to ticket vending machines (TVM) and passenger information displays (PIDs).

If the developer proposes to build over the busway, the development should maintain a 16-foot, 9-inch minimum clearance above the roadway.

Pedestrian Access to Metro Facilities

The joint development should provide safe, landscaped pedestrian access connecting the Metrorail Station entrance with the following:

- Intersection of Madison and West Streets;
- Intersection of Wythe Street, Braddock Road and West Streets (may be integrated into the open space described in Section 5.3); and
- Braddock Road, crosswalk connecting to the multi-use trail to King Street Metrorail Station.

Metro station access walkways should be configured to provide clear and intuitive wayfinding to the Metrorail Station entrance with a minimum of signage. The path of travel should be as direct as practical, with a minimum of blind corners and changes of direction.

Metro station access walkways should not be less than 10 feet clear width, and may be co-located with public plazas.

Kiss & Ride

Kiss & Ride functions (including passenger pickup/dropoff, taxis, shuttles and car-sharing), will be relocated to adjacent streets.
Bicycle Facilities for Transit
The developer will provide 50 bicycle racks and 12 bicycle lockers for transit use. Infrastructure for a Capital Bikeshare station, with a capacity of up to 20 bicycles, should also be provided.

5.5 Urban Design

Open Space
The developer should provide well-designed and active open space for the Metrorail site at the corner of Wythe and West Streets. This is intended to establish a gathering space for the community, a vibrant neighborhood square activated by neighborhood-serving stores and restaurants, and "anchored" by the WMATA station entrance.

The developer is encouraged to enliven the open space with items such as café tables, public art, and a water feature. The developer should also provide street furniture for public use including benches, bicycle racks, trash and recycling receptacles.

Provide pedestrian-scale lighting via single (separate) light standards, Dominion Virginia Power colonial style with black finish.

Sidewalks
It is WMATA’s expectation that the developer will finance, design, and construct sidewalks fronting on Braddock Road and West Street with the following characteristics:

- Dimensions: All sidewalks fronting on Braddock Road and West Street should be a minimum of 14 feet from the curb to the face of the building.
  - Where retail, lobbies or other active uses front on the street, increase sidewalk widths up to a maximum of 20 feet, occupying a portion of the development parcel if necessary.
- Materials: sidewalks should be concrete with visual accents formed with joints and/or scoring. Sidewalks will conform to the City’s standards, and include “lamp black” color additive.

Architectural Design
Buildings should be of high-quality design with modern architecture, and incorporate materials that reflect the industrial heritage of the neighborhood.

5.6 Environmental Requirements

Sustainability
The developer should be aware of the City’s Green Building Policy at: http://alexandriava.gov/uploadedFiles/planning/info/GreenBuildingPolicyhandout.pdf

Because the principles of mixed-use, compact, pedestrian-oriented development set forth in these Requirements and Guidelines are inherently sustainable, WMATA will not require a joint developer to obtain environmental certification. However, WMATA will strongly encourage sustainable design and
construction features, and to seek EarthCraft Virginia and/or US Green Building Council (USGBC) LEED certification.

**Stormwater Retention/Improvements**

As part of the joint development project, the developer will design, finance, build, and maintain a stormwater retention and management system within the Joint Development Parcel with sufficient capacity to accommodate the stormwater flows of the joint development program. The retention facilities should be underground, should be designed in consultation with WMATA, and the City, and must meet all applicable regulatory requirements. See Section 3.3 and Appendix B for more information on WMATA’s stormwater analysis.

Developers are encouraged to incorporate additional flood mitigation measures in their site designs.

**5.7 Construction Staging and Interim Operations**

**Design Review**

The developer will prepare and submit to WMATA a detailed plan for construction period staging, maintenance of traffic plans, and interim operations for WMATA review and approval in compliance with the WMATA Adjacent Construction Project Manual and the following section.

**Construction Staging and Interim Operations**

Bus, pedestrian and emergency vehicle access to the Metrorail station entrance will be maintained at all times.

Bus facilities will be kept in operation throughout construction. Temporary relocation of bus facilities is necessary; such temporary facilities will comply with WMATA criteria for passenger waiting areas including signage, shelters and amenities.

The busway (whether existing, temporary or permanent) will not be used for contractor parking or access during bus operating hours.

**6. Land Value Evaluation**

To demonstrate potential development value, WMATA conducted a residual land value (RLV) analyses for two concept plans. The following RLV assumptions formed the baseline for both concept plans:

- Two levels of below-grade parking is assumed for both concepts for a total of 349 spaces. The cost per parking space is estimated at $30,000 each.
- Bus facility costs are approximately $3 million for both concepts.
- The analysis assumed full occupancy; it did not reflect whether market conditions support the development program.
Concept 1 – Office
The office scheme achieves a 17% Internal Rate of Return (IRR), which is in the mid-range of an acceptable developer return. With an IRR of 15%, which would be minimally acceptable, a joint developer could support approximately $7.5 million in any land or demolition costs.

Concept 2 – Hotel and Residential
This concept achieves an IRR of 14.3%, which is below a minimal investment-level return. To achieve a minimally-acceptable investor level return of 15% IRR, a joint developer would require a subsidy of $1.7 million in addition to the cost of land and demolition.
Appendix A: Market Assessment

Summary

- There is currently a deep pipeline of development projects, concentrated in several large development areas (in order of distance from Braddock Road): Potomac Yard, Eisenhower/Carlyle, Landmark/Van Dorn, and Beauregard.

- Braddock Road is well-positioned, because of Metrorail access and its nearby established residential and commercial areas:
  - Though a station is planned, Potomac Yard does not currently have a Metrorail station. In the nearer term, BRT is planned to connect with Braddock Road station
  - Beauregard does not have Metrorail access
  - Eisenhower/Carlyle and Landmark/Van Dorn developments require additional pedestrian connections to enhance access to existing Metrorail stations, and not all development parcels are within easy access

- Market for retail is more limited at the site than other uses; several grocery stores are planned in the immediate area, including a Giant at Potomac Yard and a Harris Teeter in Old Town.

- Office space in Alexandria in recent years has had negative absorption.

- Hotel lags behind adjacent jurisdictions, most likely due to inclusion of older properties in the submarket.

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Summary

Development Programming

- Most immediate opportunity: for-sale multifamily residential and/or hotel, with caution about observation of planned developments coming online and differentiation:
  - 200-unit condominium (5% of 5-year total condominium demand, based on historic sales)
  - 100 to 200-room limited service, “business” hotel
  - Service retail

- No significant retail—resident and commuter-serving retail and services only.
Station Area Demographics

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Demographic Comparison

- Area grew faster than City of Alexandria and Washington-Arlington-Alexandria, DC-VA-MD-WV Metropolitan Statistical Area, with higher household incomes.
- Higher share of renter households in the ½-mile radius than the city and MSA and lower vacancy.
- The area around Braddock Road Metro has increased its share of population, households, and housing units in relation to the City.

Area Demographic Comparison

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<td>1.2%</td>
<td>1.2%</td>
<td>1.0%</td>
<td>1.0%</td>
<td>1.0%</td>
<td>1.0%</td>
<td>1.0%</td>
<td>1.0%</td>
</tr>
</tbody>
</table>

| Household Characteristics | | | | | | | | | | |
|---------------------------|--|---|---|---|---|---|---|
| Median Household Income   | $101,823 | $107,811 | $167,407 | $143,774 | $137,704 | $137,704 | $137,704 |
| Household Size            | 2.19      | 2.07     | 1.97      | 1.97      | 1.97      | 1.97      | 1.97      |
| 2013 Housing Tenure       | | | | | | | |
| Owner                     | 34%       | 40%      | 43%       | 43%       | 42%       | 42%       | 42%       |
| Renter                    | 66%       | 60%      | 57%       | 57%       | 58%       | 58%       | 58%       |
| Vacant                    | 5%        | 7%       | 5%       | 6%        | 5%        | 6%        | 6%        |

Growth of Share of City of Alexandria in a 1-Mile Radius of Braddock Road, 2000-2018

- Population
- Households
- Housing Units
Major Development Areas

Much of the new development and proposed development in Alexandria is in one of the major development areas. Potomac Yard is closest to Braddock Road and will most directly impact the site.

- Potomac Yard
  - 295 Acres
  - 4 million square feet office
  - 3,000 residential units
  - 1 million square feet hotel and retail
  - Future Metrorail station and BRT corridor

- Carlyle/Eisenhower
  - 76.5 acre
  - 2.5 million square feet USPTO
  - U.S. Courthouse

- Landmark/Van Dorn
  - 240 Acres

- Beauregard
  - 287 acres
  - BRAC project added 6,400 employees to Mark Center in 2012

Source: http://alexcon.com

Alexandria Home Sales Trends

- Total of 2,230 units sold. Increased 13.8 percent between Dec 2012 and Dec 2013, outpacing neighboring municipalities.
- Average 40 days on market—30 percent decrease over 2012.
- New condo projects sold an average of 3.3 per month.
- Condo prices increased 5.7 percent over 2013.
- In the second half of 2013, 45 units sold in the "Braddock" area (as defined by the Alexandria Economic Development Partnership, bounded by Metrorail line, Powhatan, King, and Washington), 59 in Del Ray, 29 in Rosemont, and 332 in Old Town/Waterfront.
- Recent nearby additions to residential near Braddock Road Metro include Old Town Commons (ongoing, 370 units), The Belle Pre (2013, 360 units), Braddock Metro Place (165 units), and Braddock Gateway (270 units).
Multifamily Rental Trends

- Across Alexandria, there were 360 units completed in the last 12 months. This is above the 5-year annual average of 237 units.
- There are 1,724 rental units within a quarter-mile of the station. Within a half-mile, there are an additional 390.
- All Class A apartments in the half-mile radius are located within a quarter mile. The majority of all units are located within a quarter-mile of the station.
- Asking rents range from $1,732 to $2,426 in the station area. This is higher than Alexandria as a whole.

<table>
<thead>
<tr>
<th>Buildings</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>A 0.25</td>
<td>4 1,187</td>
</tr>
<tr>
<td>0.50</td>
<td>3 1,187</td>
</tr>
<tr>
<td>B 0.50</td>
<td>2 62</td>
</tr>
<tr>
<td>C 0.25</td>
<td>10 636</td>
</tr>
<tr>
<td>0.50</td>
<td>11 129</td>
</tr>
<tr>
<td>Total</td>
<td>32 1,211</td>
</tr>
</tbody>
</table>

### As of June 2013

- Vacancy Rate: 8.20% 8.00% 4.00% 6.00% 6.00% 4.20%
- 12 Mo. Absorption: 92 102 102 126 13 10 31
- Rents:
  - Studio Asking Rent: $1,732
  - 1 Bed Asking Rent: $1,955
  - 2 Bed Asking Rent: $2,438
- 3+ Bed Asking Rent: n/a
- Inventory:
  - Existing Units: 1,724
  - 12 Mo. Condo. Starts: 0 0 276 360 290 446
  - Under Construction: 0 0 276 360 302 302 446
  - 12 Mo. Deliveries: 360 360 360 160 192 212 212

Alexandria Residential Pipeline

- As of Q4 2013, Delta Associates estimate an average of 8.5-20.8 months of condominium supply across the region:
  - In Alexandria/Arlington—estimated 20.3-20.9 months
  - In Fairfax/Falls Church—estimated 6.2-55.7 months
- 1,409 units projected to be delivered in 2014.
- 6,505 units in the city's development pipeline.
- There are over 2,600 units in the development pipeline in the west end of Alexandria (including Landmark/Van Dorn and Beauregard areas).
**Office Market**

- In the 3rd quarter of 2014, the Alexandria-395 market area—which has 832 buildings and 58.8 million of space—had a vacancy rate of 2.1 percent for all space. For Class A space—100 buildings and 19.8 million of space—the vacancy rate in this area was 29 percent.

- Overall in the Washington, DC market area, in the third quarter of 2014, had 495.9 million square feet in 9,688 buildings and a vacancy rate of 14.8 percent.

- The Alexandria office market has had negative average annual net absorption over the last five years and high vacancy rates.

- The average annual vacancy rate in 2013 for the city was 16.2%. Much of this can be attributed to BRAC vacancies (although vacant space has since been leased and occupied).

- Major office leases in 2013: National Science Foundation, 667,000 square feet in the Eisenhower-Carlyle Area, the Institute for Defense Analyses 440,000 square feet of new space in Potomac Yards, City of Alexandria Public Schools at 1340 Braddock Place (44,683 square feet), and SIG Holdings sublease at 11 Canal Center Plaza (25,578 square feet).

- There is a general downsizing of office use on a per employee basis, regionally and in Alexandria, as a result of major issues impacting office leasing such as downsizing/rightsizing by tenants, increases in telecommuting, slowing down of federal leasing and the impact that has on government contracting.

---

**Office Market**

- Compared performance of office space at Braddock Road Metro to other nearby Metro station areas.

- Supply is limited at present. Majority of space is in two buildings:
  - Braddock Metro Center 1
    - 41,116 square feet
    - 4 stories
    - Class A
    - Built 1985
  - Braddock Metro Center 2
    - 146,520 square feet,
    - 7 stories
    - Class A
    - Built 1985

**Metro Station Area Office Performance Statistics**

<table>
<thead>
<tr>
<th>Metro Station</th>
<th>Existing Buildings</th>
<th>Existing SF</th>
<th>Gross Rent Per SF</th>
<th>Vacant Rate</th>
<th>5-year Average Gross Rent/SF</th>
<th>5-year Average Vacancy Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Braddock 1A</td>
<td>7</td>
<td>381,704</td>
<td>$27.77</td>
<td>1.0%</td>
<td>$33.94</td>
<td>1.0%</td>
</tr>
<tr>
<td>King Street</td>
<td>5</td>
<td>263,965</td>
<td>$35.47</td>
<td>1.0%</td>
<td>$41.07</td>
<td>1.0%</td>
</tr>
<tr>
<td>Eisenhower</td>
<td>6</td>
<td>315,045</td>
<td>$49.45</td>
<td>1.0%</td>
<td>$50.30</td>
<td>1.0%</td>
</tr>
<tr>
<td>Crystal City</td>
<td>14</td>
<td>479,310</td>
<td>$55.18</td>
<td>1.0%</td>
<td>$63.57</td>
<td>1.0%</td>
</tr>
<tr>
<td>Pentagon</td>
<td>15</td>
<td>280,616</td>
<td>$61.24</td>
<td>1.0%</td>
<td>$70.82</td>
<td>1.0%</td>
</tr>
</tbody>
</table>

- Lower total office space
- Lower rent
- Fairly stable tenancy
- Higher occupancy rate
- Higher absorption
Office Pipeline & Employment-Driven Demand

- In next 5 years, Alexandria will add approximately 5,200 new employees in high office-using industries (Source: Woods and Poole Economics).
- This translates to approximately 1.0 million to 1.3 million square feet.
- The pipeline for office appears to largely satisfy the immediate need for office space in Alexandria.

City of Alexandria Approved Office Project Square Footage

| Approved  | 2,658,378 |
| Approved Site Plan | 697,417 |
| Total Square Footage | 3,355,795 |

Source: Summarized by AECOM from data provided by the City of Alexandria Development Office of the Department of Planning and Zoning, as of 3/24/2014.

- Approved office projects:
  - Mark Center V
  - ATA Development Extension Block 20
  - Potomac Yard Landbay G/H
  - Carlyle Plaza I
  - Block B Hoffman Town Center
  - Victory Center
  - Some mixed use projects could have office space (many defined as residential/retail)

City of Alexandria Hotel Revenues

- Properties in the City were reduced by 7 from 2006 to 2013. As of 2013, there were 22 lodging properties in Alexandria.
- Taxable revenue remained relatively steady, though revenue per establishment increased, suggesting that older properties were replaced by newer, more productive ones.

Source: Virginia Department of Taxation via the Center for Economic and Policy Studies at the Weldon Cooper Center for Public Service at the University of Virginia, http://www.coopercenter.org/ecd/economics/
Braddock Road Metrorail Station: Joint Development Analysis

Hotels

A year-over-year comparison of average room rates and occupancy rates in Alexandria shows a decline; also the trend across the metro area.

- Average room rates also declined in Alexandria from 2013 to 2013.
- The data also includes inventory in the Fairfax County portion of Alexandria, such as older properties south on Route 1. It is likely that newer, more competitive products are performing better.

Hotel Performance Data, 2013-2014

<table>
<thead>
<tr>
<th></th>
<th>ADR Washington DC-MD-VA</th>
<th>ADR Alexandria</th>
<th>Occupancy Washington DC-MD-VA</th>
<th>Occupancy Alexandria</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>$150.00</td>
<td>68%</td>
<td>$140.00</td>
<td>67%</td>
</tr>
<tr>
<td>2011</td>
<td>$130.00</td>
<td>65%</td>
<td>$120.00</td>
<td>66%</td>
</tr>
<tr>
<td>2012</td>
<td>$110.00</td>
<td>63%</td>
<td>$110.00</td>
<td>65%</td>
</tr>
<tr>
<td>2013</td>
<td>$100.00</td>
<td>62%</td>
<td>$90.00</td>
<td>66%</td>
</tr>
</tbody>
</table>

Pipeline

- 109-room Hilton Garden Inn near King Street Metro.
- 120-room hotel with restaurant at 220 Union Street.
- 240-room hotel at Carlyle Plaza Two (relocated: FAR—originally planned as office).
- Major planned development areas over 1,500 planned rooms.
- National Science Foundation (Eisenhower Ave) will generate demand for 30,000 visitors on an annual basis.

Alexandria Estimated Hotel Demand

- Total Room Night Demand: 3,300,000
- % Overnight: 78%
- Overnight Visitors: 2,574,000
- Visitors Per Party: 2.7
- Visitor Parties: 963,333
- # of Nights per Party: 4
- Visitor Nights: 3,613,333
- % Staying in Hotel: 44%
- Total Room Night Demand: 1,677,867

Existing Room Night Supply

- Existing Room Supply (per STR): 3,690
- Known Planned Rooms: 1,969
- Total Existing/Planned: 5,659
- Total Nights at 365 nights/year and 70% occupancy: 1,488,755

Net Demand

- Total Room Night Demand: 1,677,867
- Total Existing and Planned Room Night Supply: 1,488,755
- Net Room Night Demand: 191,912
- New Room Demand at 365 nights/year: 524

Note that there is a slowing of market for meetings/events related to the federal government.

Braddock Road Metro Station
Market Overview
January 14, 2015
Page 15

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Supplemental Major Development Area Information

Potomac Yard in Detail

Landbay F (Potomac Yard Center)
Owned: Lennar
Office – 1,910,000 sf
Residential – 4,495 units
Retail – 450,000 sf
Hotel – 170,000 sf
Status: Proposed

Landbay G (The Exchange)
Main Line Blvd & Mount St
Blocks 0/1
Owned: MRP Residential
Residential – 333 units
Status: Under Construction

Block D
Owner: MRP Residential
Office – 50,000 sf
Retail – 60,000 sf
Status: Under Construction

Block C
Owner: MRP Residential
Office – 140,000 sf
Status: Under Construction

Landbay E
Main Line Blvd & Eisenhower Ave
Owned: MRP
Residential – 251 units
Retail – 60,000 sf
Hotel – 1,000,000 sf
Status: Under Construction

Landbay I
Main Line Blvd & McKinley
Owned: Public
Status: Identified

Landbay J
Jefferson Davis Hwy & Potomac Ave
Majority of Landbay I
Owned: Public
Residential – 183 units
Retail – 33 units
Status: Under Construction

Block Bound by Potomac Ave and Mainline Ave
Owned: Wood Partners
Residential – 96 units
Status: Identified

Landbay L
Main Line Blvd & S Monroe Ave
Owned: Wood Partners
Residential – 226 units
Status: Under Construction

Landbay M
Main Line Blvd & George Washington
Middle School
Owned: Public
Status: Identified

Source: http://cdewese.org
Beauregard in Detail

Town Center
Reading Ave & N Beauregard
Owned: JBG Properties
Office - 403,105 sf
Residential - 3,123 units
Retail - 200,000 sf with an additional optional 105,045 sf
Hotel - 126,000 sf
Status: Proposed

Garden District
Sanger Ave & N Beauregard
Owned: JBG Properties
Residential - 1,008 units
Retail - 21,350 sf (optional)
Status: Proposed

Greenway
1300 S Sanger Ave
Owned: JBG Properties
Residential - 1,081 units
Retail - 13,350 sf
Status: Proposed

Seminary Overlook
Seminary Rd & N Van Dorn St
Owned: Home Properties
Residential - 600 units
Status: Proposed

Southern Towers
Seminary Rd & L St
Owned: Southern Towers
Office - 165,000 sf
Retail - 25,000 sf with an additional optional 60,000 sf
Hotel - 100,000 sf
Status: Identified

Upland Park
N Beauregard & Seminary Rd
Owned: Hakomon
Office - 78,450 sf
Residential - 581 units
Retail - 15,000 sf (optional)
Hotel - 75,000 sf
Status: Identified

Adams
1250 - 2000 N Beauregard
Owned: Duke Realty
Office - 1,024 sf
Retail - 15,933 sf
Hotel - 100,000 sf
Status: Identified

2000 & 2500 N Van Dorn
Owned: WMF
1.54 Acres
Office
Status: Proposed

Source: http://aecom.com
Appendix B: Stormwater Assessment

WMATA performed a stormwater analyses for two concept plans. The new Virginia stormwater management (SWM) regulations (Virginia Runoff Reduction Method, VRRM) require development projects to provide low impact development (LID) SWM facilities on sites when possible (LID includes techniques such as rain gardens/bioretention, permeable pavement, and green roofs). For an urban site like the Braddock Road Metrorail Station, permeable pavement and green roofs are the most viable LID techniques.

The following diagrams demonstrate land cover assumed for the existing condition and test-fit concepts:

**Existing Condition Land Cover**

- Impervious area (sidewalks, street, roof)
- Open space (lawn, landscaping)
- Permeable sidewalks
- Green roof (vegetated roof)
Concept 1 – Office Land Cover

- Impervious area (sidewalks, street, roof)
- Open space (lawn, landscaping)
- Permeable sidewalks
- Green roof (vegetated roof)

Concept 2 – Hotel and Residential Land Cover

- Impervious area (sidewalks, street, roof)
- Open space (lawn, landscaping)
- Permeable sidewalks
- Green roof (vegetated roof)
The Virginia SWM regulations require a 20% reduction in the existing annual P (phosphorus) loading for sites over 1 acre. The existing 4.3 acre site is 70% impervious (based on analysis of survey); based on this, calculations performed in VRRM spreadsheets produce a raw existing P loading of 7.30 lb/yr. A credit is given to sites for redevelopment of existing impervious area, i.e. re-paving existing impervious area, rather than paving over unpaved area. The redevelopment credit produces an adjusted "existing conditions" P loading of 6.92 lb/yr for Concept 1, and 6.94 lb/yr for Concept 2 (these figures differ based on the amount of "redevelopment" area able to be credited). Based on their proposed layouts, Concept 1 and Concept 2 produce post-development P loadings of 8.37 and 8.29 lb/yr, respectively.

**Stormwater Analysis Table**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Concept 1</th>
<th>Concept 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Office</strong></td>
<td>6.92</td>
<td>6.94</td>
</tr>
<tr>
<td><strong>Hotel and Residential</strong></td>
<td>8.37</td>
<td>8.29</td>
</tr>
<tr>
<td>Load Reduction Required (lb/yr)</td>
<td>2.56</td>
<td>2.48</td>
</tr>
<tr>
<td>P treated by green roof and permeable pavement (lb/yr)</td>
<td>1.31</td>
<td>1.34</td>
</tr>
<tr>
<td>P untreated by green roof and permeable pavement (lb/yr)</td>
<td>1.25</td>
<td>1.14</td>
</tr>
</tbody>
</table>

*Source: AECOM, calculations derived from VRRM spreadsheet*

Since the treatment provided by the green roof and permeable pavement areas is insufficient to provide the required P load reduction for Concept 1 and Concept 2, an additional manufactured treatment device would be needed to treat the balance. These devices are assigned a phosphorus treatment efficiency by the Virginia Department of Environmental Quality, ranging from 20% to 50%. For joint development at the Braddock Road Metrorail Station, a filter structure accepting runoff from adjoining street pavement would be the best solution to treat the balance. Alternatively, a non-proprietary sand filter structure could be used, at 60-65% treatment efficiency. (Off-site impervious area will need to be treated because treatment of on-site impervious area has already been maximized.)

In addition to the water quality phosphorus treatment required, a water volume treatment is required in order to reduce the quantity of runoff from the site. Generally, two criteria must be met:

- 24-hour extended detention of the runoff from the 1-year 24-hour storm; and
- Release of post-development peak flow from the 10-year 24-hour storm at a rate equal to or below the pre-development flow rate.

Site storage was calculated for the land area owned by WMATA which includes portions of Braddock Road and West Street shown above. For both concept plans, the 1-year volume that must be detained on-site over 24 hours is approximately 6,300 cubic feet. In order to satisfy the 10-year release rate criteria (see second bullet, above), a volume facility of approximately 12,500 cubic feet is required. In order to satisfy this, a volume detention facility of approximately 12,500 cubic feet will be required. Due to limited surface storage area available, volume will need to be detained in an underground vault and
released into the storm drain system. Existing site storm drainage ties into a storm drain system along Braddock Road, draining towards the west, and proposed storm drains will need to connect to the same system.

Note that WMATA did not calculate storage needs to contribute towards alleviating flooding attributed to adjacent streets and properties because data was unavailable for off-site storm drain conveyance conditions.
Appendix C: Transit Assessment

As part of the Braddock Road Metro Station Joint Development process, WMATA analyzed existing operations; determined future service needs; and evaluated one-way and two-way bus operations. Braddock Road Metro Station has five standard bus bays in a one-way layout serving eight routes: 10A, 10B, 10E, 10S (formerly 9E), AT2, AT3, AT4, and AT5 (see Existing Circulation). The site contains an internal bus loop with an entrance/exit for buses at the northern end of the station. Buses also exit onto Braddock Road with a right turn only unsignalized movement. Recent and planned service changes at Braddock Road Metro Station include the following:

- Increase frequency of AT2 Westbound from 30 minute to 20 minute headways (planned);
- New BRT (a.k.a. Metroway) service with 12 minute headways (recent); and
- Relocate 10E and 10S to their former location on Monroe Street (proposed, pending concurrence from City of Alexandria Transportation & Environmental Services).

Six standard bus bays and two articulated layover bays serving seven routes are required to accommodate existing and future needs: 10A, 10B, AT2, AT3, AT4, AT5, and Metroway (see Bus Operations and Bay Assignments below). For the one-way and two-way bus scenarios outlined below, the existing internal bus loop would be displaced by joint development.

**One-Way Scenario:** In order to mirror the one-way bus circulation that exists today, buses would need to exit the station onto Braddock Road through a left-turn movement and recirculate onto West Street. This scenario would necessitate a signalized intersection at the Braddock Road exit to accommodate Metroway, AT2 and AT5 left-turn movements (however the spacing between the existing signal at West Street and the Braddock Road exit would not meet minimum signal spacing requirements). It is unlikely that an unsignalized left-turn movement onto Braddock Road would be permitted because of site distance conflicts at the embankment/overpass.

**Two-Way Scenario** (see Future Two-Way Bus Bay Layout below): Buses would have the ability to enter and exit the station from the most direct path and they would not need to recirculate on West Street. Metroway would recirculate at the northern end of the site. The two-way scenario would minimize bus congestion on West Street. The time savings associated with this scenario would be most advantageous for the through routes in which the Braddock Road Station is a mid-point stop (10A, 10B, AT3, AT4), accounting for 22 buses per peak hour.

The two-way scenario is the preferred future option for the station because there are bus travel time savings in a two-way layout and there is a desire from stakeholders to minimize future bus congestion on West Street.

---

1 Per VDOT’s Road Design Manual, Appendix F, Table 2-2, the minimum spacing required between two signalized intersections on a minor arterial road with a 25 MPH speed limit (such as East Braddock Road) is 880 feet.
### Future Two-Way Bus Operations and Bay Assignments (see corresponding layout above)

#### EAST SIDE BAYS

<table>
<thead>
<tr>
<th>BAY #</th>
<th>Route</th>
<th>Total Peak Hour Buses</th>
<th>Total Bus Minutes (4 Min Dwell)</th>
<th>Layover in Bay (10 Minutes)</th>
<th>Total Time in Bay</th>
<th>Hourly Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1</td>
<td>AT3 EB</td>
<td>3</td>
<td>12</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>AT4 EB</td>
<td>4</td>
<td>16</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>7</td>
<td>28</td>
<td>0</td>
<td>28</td>
<td>47%</td>
</tr>
<tr>
<td>R2</td>
<td>10A SB</td>
<td>2</td>
<td>8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>10B SB</td>
<td>2</td>
<td>8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>4</td>
<td>16</td>
<td>0</td>
<td>16</td>
<td>27%</td>
</tr>
<tr>
<td>R3</td>
<td>AT2</td>
<td>3</td>
<td>12</td>
<td>30</td>
<td>42</td>
<td>70%</td>
</tr>
<tr>
<td>R4</td>
<td>AT5</td>
<td>4</td>
<td>16</td>
<td>40</td>
<td>56</td>
<td>93%</td>
</tr>
</tbody>
</table>

#### WEST SIDE BAYS

<table>
<thead>
<tr>
<th>BAY #</th>
<th>Route</th>
<th>Total Peak Hour Buses</th>
<th>Total Bus Minutes (4 Min Dwell)</th>
<th>Layover in Bay (10 Minutes)</th>
<th>Total Time in Bay</th>
<th>Hourly Capacity</th>
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</thead>
<tbody>
<tr>
<td>R5</td>
<td>AT3 WB</td>
<td>3</td>
<td>12</td>
<td></td>
<td>12</td>
<td></td>
</tr>
<tr>
<td></td>
<td>AT4 WB</td>
<td>3</td>
<td>12</td>
<td></td>
<td>12</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>6</td>
<td>24</td>
<td>0</td>
<td>24</td>
<td>40%</td>
</tr>
<tr>
<td>R6</td>
<td>10A NB</td>
<td>3</td>
<td>12</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>10B NB</td>
<td>2</td>
<td>8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>5</td>
<td>20</td>
<td>0</td>
<td>20</td>
<td>33%</td>
</tr>
<tr>
<td>A1 &amp; A2</td>
<td>Metroway*</td>
<td>5</td>
<td>10</td>
<td>50</td>
<td>60</td>
<td>100%</td>
</tr>
</tbody>
</table>

* Assumes 2 minute dwell for Metroway due to BRT features (level boarding, off-board fare payment)